

QA 46 - Vitamin D Supplementation in Patients Taking Anticonvulsants/Steroids

QUESTION:

How much extra vitamin D would you give to a patient with a seizure disorder on anti-seizure medications and steroids? What are some other options to increase calcium and phosphorus besides using calcium carbonate liquid and nutraphos for tube fed patients?

Would magnesium supplement also be appropriate? And how much when you are fortifying with greater than the RDA due to long term chronic steroid use?

ANSWER:

Vitamin D is affected by some anticonvulsants (Dilantin, Phenobarbitol), which results in decreased calcium and phosphorus absorption. Dilantin and phenobarbitol also decreases serum magnesium and folic acid. Steroids (glucocorticoids) decrease calcium and phosphorus absorption, thought to be independent of vitamin D. ¹ Steroids also cause an increase in urinary calcium excretion. Effects on calcium and phosphorus as well as hormonal effects result in osteoporosis in patients on long term glucocorticoid treatment. Treatment with calcium and vitamin D plus weight bearing exercise has been shown to help glucocorticoid induced osteoporosis. ²

The combination of anticonvulsants and glucocorticoids could put a child at very high risk for poor bone density. It would be reasonable to give a multivitamin mineral supplement (containing RDA levels of vitamins and magnesium) + an additional 400 IU vitamin D for a total of 800 IU/day + 1500 mg calcium/day (from formula + supplements). When giving this amount of vitamin D, serum calcium, phosphorus and alkaline phosphorus should be checked regularly. If calcium and/or phosphorus are elevated, decrease vitamin D to the RDA for age. Serum vitamin D should also be checked to make sure that he is getting adequate, but not too much vitamin D. Serum magnesium should be checked, if low, a supplement should be given, amount depends on how low it is (contact a pharmacist to determine amount of supplement).

References:

- 1) Hovasi Cox, Janice (Ed) Nutrition Manual for At-Risk Infants and Toddlers Appendix J, p 224.
- 2) American college of Rheumatology Task Force on Osteoporosis Guidelines. Arthritis and Rheumatism. vol. 39, No 11 November 1996. pp1791-1801.